No.

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9500235

AHHE UNITED STANTES OF ANTERIOR

TO ALL TO WHOM THESE: PRESENTS: SHALL COME;

'Kentuckę Agricultural'Experiment Station

III PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WIBCILIS HEREUNTO ANNIEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW in such cases made and provided have been complied with, and the TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE POSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF NS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT, 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'CF492'

In Testimon Mherrof . I have hereunto set my hand and caused the seal of the Mant Haristy Historian Office to be affixed at the City of Washington, D.C. this twenty-eighth day of May in the year of our Lord one thousand

nine hundred and ninety-nine.

Plant Variety Protection Offi Syricultural Warketing Serv

AGRICULTURAL MARKETING SERVICE	REPRODUCE LOCALLY. Include form number and date on all reproductions. U.S. DEPARTMENT OF AGRICULTURE				
SCIENCE DIVISION - PLANT VARIETY PROTECTION OF	FICE	The following statements are made in accordance with the Privacy A. 1974 (5 U.S.C. 552a). Application is required in order to determine if a plant variety protein.			
APPLICATION FOR PLANT VARIETY PROTECTION (Instructions and information collection burden stateme	•		C. 2421). Information is held confid		
NAME OF APPLICANT(S) (as it is to appear on the Certificate)	(1010136)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME		
Kentucky Agricultural Experiment Station	KY88-4080	CF492			
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and County	•	6. TELEPHONE (include area code)	FOR OFFICIAL USE ONLY		
SlO7 Agriculture Science Building-Nort University of Kentucky	606-257-3333	9500235			
Lexington, KY 40546		6. FAX (include area code)	F DATE		
	Maria de la compansión de	606-323-3842	 June 12, 1995		
7. GENUS AND SPECIES NAME	8. FAMILY NAME (Botanii	cal)	G FILING AND EXAMINATION FEE:		
Glycine max	Leguminosae		1 2100.00 /300.4/		
. CROP KIND NAME (Common name)	<u> </u>	.	E DATE		
Soybean		•	: 6/13/25 1 7/45/25		
D. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZAT	TION (corporation, partnershi	ip, association, etc.) (Common name)	C CERTIFICATION FEE		
Agricultural Experiment Station-U.S. Go	overnment	· · · · · · · · · · · · · · · · · · ·			
I. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION	E DATE 2/1/99		
3. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERV	/E IN THIS APPLICATION A	ND RECEIVE ALL PAPERS	14. TELEPHONE (include area code)		
r. James Boling			606-257-3333		
3107 Agriculture Science Building-North	h ·		AE SAV Sautition		
University of Kentucky Lexington, KY 40546			15. FAX (include area code) 606-323-3842		
B. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow in	structions on successi		1		
a. X Exhibit A. Origin and Breeding History of the Variety		e of the Differ for the problem is the figure			
b. KI Exhibit B. Statement of Distinctness c. KI Exhibit C. Objective Description of the Variety	e Particular	en traktas er traktas k	kan ing Kabangan Salah		
d. Exhibit D. Additional Description of the Variety	and the second	kana na safing na bhoireang ab lion	a seat office which is		
e. 🛛 Exhibit E. Stetement of the Basis of the Applicant's Ownership		a chemina da colha nel color de la color da mayor (il	en de la companya de		
f. X Voucher Sample (2,500 yishle untreated seeds or, for tuber propagated			ed in a public repository)		
	· · · · ·		Bother also a family the the		
g. XJ Filing and Examination Fee (\$2,450), made payable to "Treasurer of the			<u> </u>		
	VARIETY NAME ONLY, AS A □ NO (// "no," go t	19 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	n 83(a) of the Plant Variety Protection Ac		
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14.a. CF492 is an F_4 derived line from the cross K1099 x'Hutcheson'. The cross was made in the greenhouse January 1986, and the ${\rm F}_1$ plant was grown at Lexington summer 1986 at the Kentucky Agricultural Experiment Station. The progeny were advanced by modified single seed descent (harvesting one pod per plant followed by subsampling to maintain a constant population size) for two generations at CCIC in Belize City, Belize. The F_4 plant was selected based on maturity at Lexington in 1987. The $F_{4:5}$ progeny was evaluated at Lexington in 1988 at which time the line designation (KY88-4080) was assigned. Resistance to strain G2 of soybean mosaic virus was evaluated under natural infection in the field at Lexington in 1991 and 1993 and in the greenhouse using artificial inoculation during the winter 1993 - 1994. CF492 was tested in breeding tests in Kentucky from 1989 -1994, in the Southern Uniform Soybean Tests - MG4S, in 1992 -1994, and in the Kentucky and Virginia Soybean Performance Tests in 1993 and 1994. In 1992 184 $F_{8:9}$ progeny rows were screened For segregation and off types; the nonsegregating rows were bulked. All subsequent seed increases derived from this bulk. Copies of the 1993 and 1994 Kentucky Agricultural Experiment Station Seed Laboratory Reports and the 1993 and 1994 Kentucky Seed Improvement Association field inspection reports are attached as evidence of uniformity. The data from agronomic performance in 62 regional environments are submitted as evidence of stability.

14.a continued

Agronomic summary for CF492

Uniform Test IVS 3-Year Mean 1992-1994

# of tests	Yield	Yld.	Mat.	Lod	Ht	Seed	Pro	Oil
	bu/a	Rank	+/-d	1-5	in	Qual	%	%
	62	62	62	62	62	62	35	35
Delsoy 4710 Manokin KY88-4080 (CF492)	41.8 46.1 45.4	4 1 2	-5 10/2 -3		38 28 23	2.6 1.8 1.7	40.1 40.0 41.1	20.5 20.8 21.0

20 20 21 MT S.

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CF492 is distinguishable from most maturity group IV varieties in that it is resistant to soybean mosaic virus. This resistance is derived from allele Rsv₁ Y which was inherited from the parent Hutcheson. Hutcheson and 'Clifford' are two early maturity group V varieties which have soybean mosaic virus resistance. CF492 differs from them in that Clifford has tawny pubescence and Hutcheson is about 25 cm. taller and matures 10 days later than CF492 in full season plantings in Kentucky (see below for representative data). CF492 will also differ from many other maturity group IV varieties in that it usually grows to less than 70 cm. in height. It differs from 'Ripley' and 'Calhoun', two other short maturity group IV varieties with gray pubescence, due to its soybean mosaic virus resistance, white flower color, and ten day to one week later maturity in Kentucky.

Kentucky 1994 Soybean Performance Tests

	A2 TM IS Heig	ht (cm)	Maturi	ty (date)
9	N20 / CF492	Hutcheson	CF492	Hutcheson
Lexington	66	89	10/02	10/10
Princeton	58	86	9/29	10/15
Carlisle	74	96	9/29	10/14

EXHIBIT C (Soybean)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY SOYBEAN (Glycine max L.)

SOYBE	AN (Glycine ma	X L.J	
NAME OF APPLICANT(S)	TEMPORARY DES	IGNATION VARIETY NAME	
Kentucky Agricultural Experiment Station	Ку88-4080	CF 492	
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Coo S107 Agriculture Science North	le)		IAL USE ONLY
University of Kentucky		PVPO NUMBER	
Lexington, Kentucky 40546	950	0235	
Choose the appropriate response which characterizes the vain your answer is fewer than the number of boxes provided. Starred characters ** are considered fundamental to an adeq when information is available.	, place a zero in the	first box when number is 9 or le	ss (e.g., 0 9).
1. SEED SHAPE:)		_
	. <u> </u>		
[2] L W	T T		
1 = Spherical (L/W, L/T, and T/W ratios = < 1.2) 3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)	•	al Flattened (L/W ratio > 1.2; L/T rate Flattened (L/T ratio > 1.2; T/W >	
★ 2. SEED COAT COLOR: (Mature Seed)			
	4 5 1	5 64 70 77 1	
1 = Yellow 2 = Green 3 = Brown	4 = Black	5 = Other (Specify)	**
3. SEED COAT LUSTER: (Mature Hand Shelled Seed)		<u> </u>	
		•	•
1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebso	oy'; 'Gasoy 17')	· • · · · · · · · · · · · · · · · · · ·	
★ 4. SEED SIZE: (Mature Seed)			
1 3 Grams per 100 seeds	1		
★ 5, HILUM COLOR: (Mature Seed)			
1 = Buff 2 = Yellow 3 = Brown	4 = Gray 5 =	mperfect Black 6 = Black	7 = Other (Specify)
★ 6. COTYLEDON COLOR: (Mature Seed)			
1 = Yellow 2 Green 55.05			
★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:	· · · · · · · · · · · · · · · · · · ·		
1 = Low (12) 2 = High			
* 8. SEED PROTEIN ELECTROPHORETIC BAND:			<u></u>
1 = Type A (SP1 ^a) 2 = Type B (SP1 ^b)			
9. HYPOCOTYL COLOR:			····
-			
1 = Green only ('Evans'; 'Davis') 2 = Green wit 3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71') 4 = Dark Purple extending to unifoliate leaves ('Hodgson';	•	cotyledons ('Woodworth'; 'Tracy') A')	
★10. LEAFLET SHAPE:			
2 1 = Lanceolate 2 = Oval 3 = Ovate	4 = Other (Specify)	

11. LEAFLET SIZE:	
2 1 = Small ('Amsoy 71'; 'A5312') 3 = Large ('Crawford'; 'Tracy')	2 = Medium ('Corsoy 79'; 'Gasoy 17')
12. LEAF COLOR:	
1 = Light Green ('Weber'; 'York') 3 = Dark Green ('Gnome'; 'Tracy')	2 = Medium Green ('Corsoy 79'; 'Braxton')
1 = White 2 = Purple	3 = White with purple throat
14, POD COLOR:	
1 = Tan 2 = Brown	3 = Black
15. PLANT PUBESCENCE COLOR:	
1 = Gray 2 = Brown (Tawny)	
16. PLANT TYPES:	
1 = Slender ('Essex'; 'Amsoy 71') 3 = Bushy ('Gnome'; 'Govan')	2 = Intermediate ('Amcor'; 'Braxton')
77. PLANT HABIT:	
1 = Determinate ('Gnome'; 'Braxton') 3 = Indeterminate ('Nebsoy'; 'Improved Pet	2 = Semi-Determinate ('Will') plican')
18. MATURITY GROUP:	
0 7 1 = 000 2 = 00 3 = 0 9 = VI 10 = VII 11 = VII	4 = I 5 = II 6 = III 7 = IV 8 = V II 12 = IX 13 = X
19. DISEASE REACTION: (Enter 0 = Not Tested; 1 =	Susceptible: 2 = Resistant)
BACTERIAL DISEASES:	
★ 0 Bacterial Pustule (Xanthomonas phaseoli vi	rar. sojensis) LO: ZId ZI NN S6.
★ 0 Bacterial Blight (Pseudomonas glycinea)	20.00
★ 0 Wildfire (Pseudomonas tabaci)	09V9-2MA-AQSU
FUNGAL DISEASES:	RECEIVED
★ 0 Brown Spot (Septoria glycines)	
Frogeye Leaf Spot (Cercospora sojina)	
★ 0 Race 1 0 Race 2 0 R	tace 3 0 Race 4 0 Race 5 Other (Specify)
Target Spot (Corynespora cassiicola)	
Downy Mildew (Peronospora trifoliorum va	ar. manshurica)
Powdery Mildew (Microsphaera diffusa)	
Brown Stem Rot (Cephalosporium gregatus	
2 Stem Canker (Diaporthe phaseolorum var.	caulivora)

19.	DISEA	SE REACTION	N: (Enter 0 = Not T	ested; 1 = Susceptible; 2 =	Resistant) (Continued)	and the state of t
	FUN	IGAL DISEASE	ES: (Continued)			
*	1	Pod and Sten	n Blight <i>(Diaporthe</i>	phaseolorum var; sojae)		
	0	Purple Seed	Stain <i>(Cercospora k</i>	ikuchii)		
	0	Rhizoctonia	Root Rot (Rhizocte	onia solani)		
		Phytophthor	a Rot <i>(Phytophthol</i>	a megasperma var. sojae)		
*	0	Race 1	0 Race 2	0 Race 3 0	Race 4 0 Race 5	0 Race 6 0 Race 7
	0	Race 8	0 Race 9	Other (Specify)		
	VIRA	AL DISEASES:	(
	0	Bud Blight (1	Tobacco Ringspot V	îrus)	The second second second	
	0	Yellow Mosai	ic (Bean Yellow Mo	saic Virus)		
*		Cowpea Mosa	aic (Cowpea Chloro	tic Virus)		
	0	Pod Mottle (8	Bean Pod Mottle Vi	rus)		
. 🛨	2	Seed Mottle (Soybean Mosaic Vi	rus)		
	NEM	ATODE DISEA	ASES:			
·		Soybean Cyst	Nematode (Hetero	dera glycines)		
*	0	Race 1	0 Race 2	1 Race 3 1	Race 4 Other (S	Specify)
	0	Lance Nemate	ode (<i>Hopiclaimus C</i>	olombus)		•
*		Southern Roc	ot Knot Nematode /	Meloidogyne incognita)		
*	. 0	Northern Roc	ot Knot Nematode (Meloidogyne Hapla)		
·	1	Peanut Root i	Knot Nematode (Me	eloidogyne arenaria)		
	0	Reniform Ner	matode (Rotylenchi	llus reniformis)		•
		OTHER DISE	ASE NOT ON FOR	M (Specify): _Sudden	•	
			•		t ·	
20, €	O	٠	*) = Not Tested; 1 = Suscep	tible; 2 = Resistant)	
			on Calcareous Soil	may may properly a s	90°74 Z	
<u>-</u>	<u> </u>		/)			
21. i				ed; 1 = Susceptible; 2 = R		
• •	0			arivestis) N2DV-V4	MahAb () Tanana	
	Ä		opper (Empoasca fa	,	₩.	
		Other (Specify	, Soybear	1 looper		
22. I	NDICA	TE WHICH VA	RIETY MOST CLO	SELY RESEMBLES THA	T SUBMITTED.	
· ————	CHAR	ACTER	NAME	OF VARIETY	CHARACTER	NAME OF VARIETY
Р	lant Sha	pe	Calhoun		Seed Coat Luster	Hutcheson
	eaf Shar		Hutcheson		Seed Size	Manokin
	eaf Cold		Hutcheson		Seed Shape	
: L	eaf Size				Seedling Pigmentation	
FORM	LMGs	470-57 (6-83)				
		(0-00)				Page 3 of 4

3620.

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

	NO. OF DAYS	PLANT LODGING	CM PLANT			SEED CON	ITENT	SEED SIZE G/100	NO. SEEDS/
VALUE II	MATURITY	SCORE	SOORE WEIGHT	CM Width	CM Length	% Protein	% Oil	SEEDS	POD
Submitted	131	2.0	66	. 84	119	35.8	17.6		·
Name of Similar Variety	143	2.7	91	90	142	36.0	17.8		

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

- 1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
- 2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
- 3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A2 in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
- 4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

90: ZId ZI NOT 96.

RECEIVED

ANALYSIS OF VARIANCE

11/20/96

Dependent variable: MAT (days after August 31)

Source	df	SS	MS	F-value	Pr> F
Total	43	3952.977			
environment ENV	10	2541.227	254.123	26.86	0.0000
REP in ENV	11	21.250	1.932	0.20	0.9953
variety ID	1.	1191.841	1191.841	125.99	0.0000
variety ID Residual	21	198.659	9.460		
Grand mean = 40.977		R-squared = 0.9497	c.v	. = 7.51	ક

LSD for ID = 1.9285 S.E.D. = 0.9274t (2-sided a=0.050, 21 df) = 2.0796 MSE = 9.45996

PROC ACB: Execution Time = 0.180 seconds, Kb used = 438.19 (Memory-oriented) C:\A4W\DATA\TODD-ID.DBF, Kb Free = 9785.0, Wednesday, November 20 1996, 17:21:54

ANALYSIS OF VARIANCE

11/20/96

Dependent variable: HT (inches)

	Source	df	ss	MS	F-value	Pr> F
	Total	55	1883.982			
environment	ENV	13	832.232	64.018	15.12	0.0000
	in ENV	14	65.250	4.661	1.10	0.3999
variety	ID	1	872.161	872.161	205.95	0.0000
r / R	esidual	27	114.339	4.235		
Grand mean =	31.768		R-squared = 0.9393	C.V	r. = 6.48	8

LSD for ID = 1.1285 S.E.D. = 0.5500 t (2-sided a=0.050, 27 df) = 2.0518 MSE = 4.23479

ID

Averages
Level --- Y --- Cv Rank

2 H 35.71 13.2 1 Hutcheson
1 C 27.82 14.0 2 CF 492

PROC ACB: Execution Time = 0.192 seconds, Kb used = 456.34 (Memory-oriented) C:\A4W\DATA\TODD-ID.DBF, Kb Free = 9804.0, Wednesday, November 20 1996, 16:16:51

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION ÖFFICE EXHIBIT E STATEMENT OF THE BASIS OF OWNERSHIP	The following statements are made in accordance with the Privacy Ac 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995 Application is required in order to determine if a plant variety protect certificate is to be issued (7 U.S.C. 2421). Information is held confidential certificate is issued (7 U.S.C. 2426).				
1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION	ON 3. VARIETY NAME			
Kentucky Agricultural Experiment Station	OR EXPERIMENTAL NUMBER				
		·			
	KY88-4080	CF492			
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)	5. TELEPHONE (include area code)	6. FAX (include area code)			
S107 Agriculture Science Building-North	606-257-3333	606-323-3842			
University of Kentucky	7. PVPO NUMBER				
Lexington, KY 40546	9500235				
8. Does the applicant own all rights to the variety? Mark an "X" in appropriate i	block. If no, piease explain.	X YES NO			
9. Is the applicant (individual or company) a U.S. national or U.S. based company if no, give name of country	y?	X YES NO			
10. Is the applicant the original breeder? If no, please answer the following:a. If original rights to variety were owned by individual(s):		X YES NO			
Is (are) the original breeder(s) a U.S. national(s)? If no, give name of one of the company is the original rights to variety were owned by a company: Is the original breeder(s) U.S. based company? If no, give name of company?		YES NO			
11. Additional explantion on ownership (If needed, use reverse for extra space):					
PLEASE NOTE:					
Plant variety protection can be afforded only to owners (not licensees) who meet o	ne of the following criteria:				
1. If the rights to the variety are owned by the original breeder, that person must of a country which affords similar protection to nationals of the U.S. for the sai	be a U.S. national, national of a t me genus and species.	JPOV member country, or national			
If the rights to the variety are owned by the company which employed the originationals of a UPOV member country, or owned by nationals of a country which genus and species.	inal breeder(s), the company must a affords similar protection to nation	t be U.S. based, owned by onals of the U.S. for the same			

- 3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

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